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## VARIATION IN COLOR AND MACULATION IN A POPULATION OF *NEMORIA PULCHERRIMA*

FROM THE SIERRA NEVADA OF CALIFORNIA  
(LEPIDOPTERA: GEOMETRIDAE)

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IT IS OUR PRESENT INTENTION to demonstrate the extreme variation exhibited by a population of the geometrid, *Nemoria pulcherrima* (Barnes and McDunnough), one of the greens from Auburn, California. The specimens concerned were all collected in the spring of 1967 on the rim of the American River Canyon. The specimens were attracted to incandescent white light in front of a white reflective surface from an area of mixed vegetation characteristic of upper Sonoran-transition zone localities. The trees present were scattered individuals of Blue Oak (*Quercus douglasii*), Black Oak (*Quercus kelloggii*), Interior Live Oak (*Quercus wislizenii*), Digger Pine (*Pinus sabiniana*), and Ponderosa Pine (*Pinus ponderosa*). Undergrowth included varied herbaceous vegetation and shrubs, the latter consisting chiefly of Buckeye (*Aesculus californica*), Toyon (*Heteromeles arbutifolia*), and Manzanita (*Arctostaphylos spp.*).

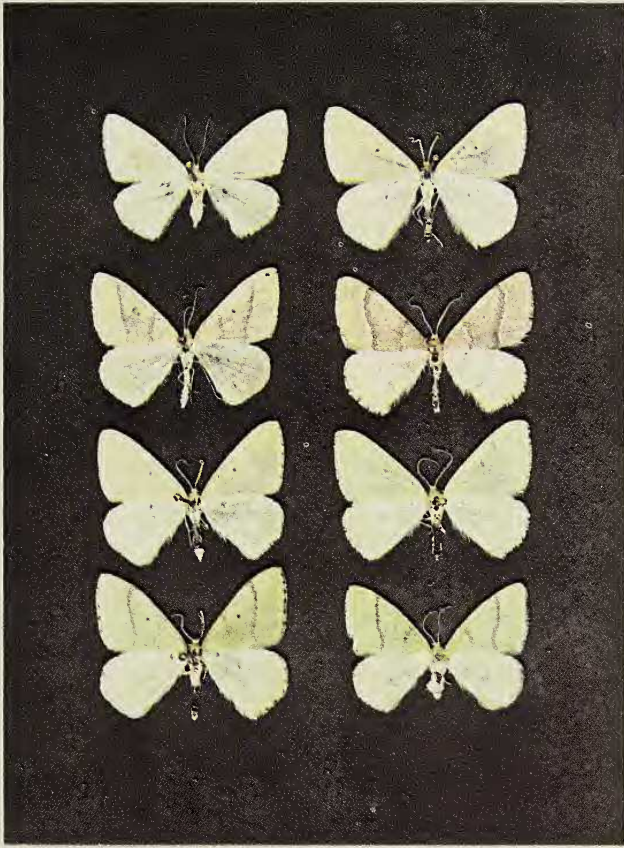
The evenings on which the largest series were collected, February 10 and 17, were fairly warm for that season and were quite dark being one day after the new moon and the day of the first quarter, respectively. Most moths came to the light between the hours of 8:30 and 10:30 P.M., although some specimens were captured as late as 11:30 or 12 P.M. None of the

specimens were reared; but it seems probable that the host plant is oak as it was found to be in southern California by Comstock and Dammers (1937). The same host plant is cited for *pulcherrima* by Comstock (1960). Whether or not he was referring to his rearing of "*naidaria*" or whether he conducted additional rearing experiments is unknown at this time.

Both the larva and pupa are described by Comstock and Dammers (1937) under the specific name *Nemoria naidaria* Swett. However, *naidaria* was synonymized under *pulcherrima* by McDunnough (1938), and the condition remains the same today. It might be interesting to note in McDunnough's 1938 list that he cited "McD." as author of *pulcherrima*. As the original description was by Barnes and McDunnough, we have adhered to the original citation, assuming the "McD." to be an accident of some kind.

As can be seen by the type male in the Contributions . . . by Barnes and McDunnough (1916 vol. 3, pl. 2, fig. 10), this specimen most closely resembles our specimen which is the left one, second row from the bottom on the colored plate. In recent years a reddish form has been noticed in certain populations of *pulcherrima*, and in a considerable percentage also. Of the specimens examined from the 1967 collection at Auburn, one third of the population was of the red form. Of the red specimens only 10 per cent lacked the dark transverse lines of both the primaries and secondaries; however, the black discal dots seen in the upper left specimen (colored plate) were found to be prominent. In the green specimens of the population, 60 per cent of the specimens possessed prominent black transverse lines, and 24 per cent possessed faint black transverse lines, making up a total of 85 per cent of the green phenotypic portion of the population. The discal dots were always found to a greater or lesser degree of prominence. In the coast range populations of central California, one may encounter specimens in which the discal dots may be entirely lacking, and seldom does one collect specimens possessing the transverse lines.

It was suspected that the coast range populations and the Sierran populations might represent two distinct entities specifically, but there appears to be inadequate evidence at this time to warrant the erection of a new name. Future revisionary work and additional biological studies may reveal intricate characters by which one may be able to distinguish the Sierran and coastal populations at the specific level.



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